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EXAMINER

CARTER III, ROBERT E

ART UNIT	PAPER NUMBER
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2629

MAIL DATE	DELIVERY MODE
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10/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/519,055

Applicant(s)

VERHAEGH, WILHELMUS

Examiner

Robert E. Carter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07/13/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-6, 8-15, 18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-6, 8-15, 18 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Response to Amendment

The amendment filed on 07/13/2007 has been entered and considered by examiner.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "said key correction means" in line 2. There is insufficient antecedent basis for this limitation in the claim because claim 12, upon which claim 14 depends, does not contain any instance of a key correction means.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 11-12, 15, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Hatakeyama et al. (Japanese publication # 09-330175).

As for claim 11, Hatakeyama et al. discloses:

*A data processing device for enabling a user to input characters, the device comprising:
a touch-sensitive member (240) arranged to function as a virtual keyboard (430)
(Paragraphs [0008], [0013]),*

said member including sensors (each lattice point on the grid) for detecting touched zones (each finger touching the keyboard is one zone. Fig. 6 illustrates a single touched zone, Fig. 5 illustrates 8 touched zones) on said member and for sensing a force of at least one finger on the touch-sensitive member (Paragraph [0008]), the sensors being configured to identify a finger causing a force on the touch-sensitive member higher than the other fingers when more than one finger touches said member (Paragraph [0008]);

a key allocation means for allocating at least two reference keys (F key to index finger of left hand, J Key to index finger of right hand) of the virtual keyboard to respective zones on said member in response to said detection of touched zones (Paragraphs [0082]); and

a key stroke recognition means configured to recognize a key stroke by analyzing a relative position of the zone touched with the higher force (second pressure range) with respect to a position of at least one other zone touched with a lower force (first pressure range), (Paragraph [0008], The location of the keys is determined based on the position of the fingers when first placed on the keyboard with a force in the first pressure range. Therefore, when a location with a force in the second pressure range is detected, a key stroke is recognized by analyzing the position if that

location with respect to the position of the fingers when first placed on the keyboard with a force in the first pressure range).

As for claim 12, Hatakeyama et al. teaches:

wherein said at least one zone with the lower force corresponds to at least one of said reference keys (Paragraph [0081], the position of any of the four fingers of each hand as initially placed on the keyboard with a lower force identifies a reference key touched with a lower force).

As for claim 15, Hatakeyama et al. teaches:

*wherein said touch-sensitive member further comprises:
a display means arranged to display a representation of at least one reference key and/or other key of the virtual keyboard (Paragraph [0081]).*

As for claim 18, Hatakeyama et al. teaches:

*A method enabling a user to input characters, the method comprising:
a step of detecting touched zones (each finger touching the keyboard is one zone. Fig. 6 illustrates a single touched zone, Fig. 5 illustrates 8 touched zones) (Paragraph [0008]) on a touch-sensitive member (240) configured to function as a virtual keyboard (430), (Paragraph [0008], Paragraph [0013]), and
a step of allocating at least two reference keys (F key to index finger of left hand, J Key to index finger of right hand) of the virtual keyboard to respective zones on said member in response to said detection of touched zones (Paragraphs [0082]-[0083]), and,
a step of sensing a force of at least one finger on the touch-sensitive member (Paragraph [0008]), and*

a step of identifying a finger causing a force (second pressure range) on the touch-sensitive

member higher than other fingers (first pressure range) when more than one finger touches said member (Paragraph [0008]),

and

a step of recognizing a key stroke by analyzing a relative position of

the zone touched with the higher force with respect to a position of at least one other

zone touched with a lower force), (Paragraph [0008], The location of the keys is

determined based on the position of the fingers when first placed on the keyboard with a force in the first pressure range. Therefore, when a location with a force in the second pressure range is detected, a key stroke is recognized by analyzing the position if that location with respect to the position of the fingers when first placed on the keyboard with a force in the first pressure range).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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left hand, J Key to index finger of right hand) *being allocated to said detected zones by said key allocation means, and other keys of the group of keys being allocated upon allocating at least one reference key of said group of keys (Paragraphs [0080]-[0082]); and*

Hatakeyama et al. further teaches that the locations of the left and right hands as they are placed on the touch sensitive pad serves as the home position (Detailed Description, Paragraph [0081]).

Hatakeyama et al. does not teach the two groups of keys being tilted relative to each other.

In the same field of endeavor (i.e. virtual keyboards) Natoli (Figs. 7, 10) discloses:

wherein said two groups of keys (Fig. 10, left group, right group) have different orientations on the touch-sensitive member when the keys of said groups are allocated such that the two groups of keys are tilted relative to each other.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the tilted group layout of the keyboard in Natoli to the touch-sensitive keyboard of Hatakeyama et al. to provide a more relaxed orientation for the user (Natoli, Col. 10, lines 16-19).

As for claim 3, Hatakeyama et al. teaches:

wherein the at least one touch sensor is further arranged to determine a parameter of a respective one of the touched zones, said key allocation means being arranged to allocate the reference keys having a size and/or form on said touch-sensitive member

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 3-6, 8-10, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatakeyama et al. in view of Natoli (US Patent # 6,388,657).

As for claim 8, Hatakeyama et al. (Figs. 5, 20) teaches:

A data processing device enabling a user to input characters (Paragraph [0007]), the device comprising:

a touch-sensitive member (240) (Paragraph [0008]) arranged to function as a virtual keyboard (430) (Paragraph [0013]),

said member including touch sensors (each lattice point on the grid) for detecting a plurality of touched zones (each finger touching the keyboard is one zone. Fig. 6 illustrates a single touched zone, Fig. 5 illustrates 8 touched zones) on said member (Paragraph [00081]);

a key allocation means for allocating

(a) a plurality of reference keys (F key to index finger of left hand, J Key to index finger of right hand) of the virtual keyboard to respective zones on said member in response to said detection of touched zones (Detailed Description, Paragraphs [0082]-[0083]) and
(b) other keys (rest of keyboard 430) of the virtual keyboard upon allocating said reference keys (Paragraph [0081]);

wherein the virtual keyboard has two groups of keys (Fig. 20, left hand group, right hand group), each group of keys including at least one reference key (F key to index finger of

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depending on said parameter of the respective detected zone (Paragraphs [0085]-[0088]).

As for claim 4, Hatakeyama et al. teaches:

wherein said key allocation means is arranged to allocate said other keys having a size and orientation on said touch-sensitive member depending on relative locations of the detected touch sensitive zones (Paragraphs [0085]-[0088]).

As for claim 5, Hatakeyama et al. teaches:

wherein said key allocation means is arranged to allocate four or eight reference keys (Fig. 5 shows 8 fingers being detected corresponding to the eight keys of the home position) upon detecting four fingers of the user's left hand and/or four fingers of the user's right hand touching the touch-sensitive member (Paragraphs [0080]-[0081]).

As for claim 6, Hatakeyama et al. teaches:

wherein said virtual keyboard has a QWERTY-type layout (Paragraph [0080]).

As for claim 9, Hatakeyama et al. teaches:

wherein the touch sensors sense a force of at least one finger on the touch-sensitive member (Paragraph [0008]).

As for claim 10, Hatakeyama et al. teaches:

further including:

a stroke recognition means which recognizes a key stroke by analyzing a relative position of a zone touched by a finger causing a higher force (second pressure range) on the touch-sensitive member relative to positions of zones touched by other fingers with a lower force (first pressure range), such that the key stroke is

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determined by the relative position of the higher forced touched zone relative to the lower force touched zones rather than by location on the touch-sensitive member

(Paragraph [0008], The location of the keys is determined based on the position of the fingers when first placed on the keyboard with a force in the first pressure range.

Therefore, when a location with a force in the second pressure range is detected, a key stroke is recognized by analyzing the position of that location with respect to the position of the fingers when first placed on the keyboard with a force in the first pressure range).

As for claim 19, Hatakeyama et al. teaches:

A computer-readable medium with instructions that are executed on a program computer to perform the method as defined in claim 8 (Paragraph [0001]).

8. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatakeyama et al. in view of Gantenbein (IBM Technical Disclosure Bulletin, Vol. 36, No. 11, November 1993 "Soft Adaptive Follow-Finger Keyboard for Touch-Screen Pads").

As for claim 13, Hatakeyama et al. teaches all the limitations of claim 11.

However, Hatakeyama et al. does not teach repeatedly allocating at least one of the reference keys.

In the same field of endeavor (i.e. virtual keyboards) Gantenbein discloses:

further comprising:

a key correction means for correcting a location of at least one of the reference keys by repeatedly allocating at least one of the reference keys (Page 5, lines 1-3, Page 6, lines 2-11, Page 7, lines 1-10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the key correction means of Gantenbein in the touch-sensitive keyboard of Hatakeyama et al. to increase the hit success ratio (Gantenbein, Page 7, lines 27-30).

As for claim 14, Gantenbein teaches:

wherein said key correction means functions upon detecting a change of position of at least one of said other fingers (Page 6, lines 2-8).

Response to Arguments

9. Applicant's arguments with respect to claims 3-6, 8-15, and 18-19 have been considered but are moot in view of the new ground(s) of rejection.

In view of the amendment, the reference Gantenbein has been added for a new ground of rejection.

With regard to claim 8, applicant argues:

"Claim 8 specifically provides for the virtual keyboard to have two groups of keys which are tilted relative to each other. By distinction, Hatakeyama defines a standard keyboard with the keys in straight lines [0042], [0043], [0048]"

However, the cited paragraphs merely teach the four fingers of each hand being in a straight line, not all eight fingers being in a straight line, nor the straight lines formed by each group of four fingers being parallel to one another, or in any other orientation for that matter. Furthermore, Hatakeyama et al. teaches that the locations of the left and right hands as they are placed on the touch sensitive pad serves as the home position

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(Paragraph [0081]). A secondary reference, Natoli, has been brought in which teaches a virtual keyboard with two groups of keys tilted relative to each other.

With regard to claim 10, applicant argues:

“Dependent claim 10 further calls for a stroke recognition means which recognizes a keystroke by analyzing relative position of a zone touched by the finger causing a higher force relative to the zones touched by the other fingers with a lower force, e.g., the fingers in the rest position. By contrast, Hatakeyama defines a keyboard and recognizes keystrokes based on high pressure in one of the predefined keys of the virtual keyboard.”

However, the locations of the predefined keys are determined based on the position of the fingers when first placed on the keyboard with a force in the first pressure range (lower force). Therefore, when a location with a force in the second pressure range (higher force) is detected, a key stroke is recognized by analyzing the position if that location with respect to the position of the fingers when first placed on the keyboard with a force in the first pressure range

With regard to Claim 11, applicant argues:

“Claim 11 calls for a key recognition means which is configured to recognize a keystroke by analyzing a relative position of the zone touched with higher force with respect to a position of at least one other zone touched with a lower force. By contrast, Hatakeyama determines keystrokes based on a higher pressure in one of the previously defined virtual keys.”

This argument is identical to that of claim 10 and is refuted in the same manner.

With regard to claim 13, applicant argues:

"Claim 13 provides for correcting or updating the position of the reference key(s). This permits the operator to change hand positions during typing. Hatakeyama does not provide the advantage of enabling the user to change hand positions freely."

The examiner finds applicant's argument persuasive, necessitating a new ground of rejection for claims 13 and 14.

With regard to claim 18, applicant argues:

"It is directed to a method in which a keystroke is recognized by analyzing a relative position of the zone touched with higher force with respect to a position of at least one other zone touched with a lower force. This step is again not shown by Hatakeyama"

This argument is identical to that of claims 10 and 11 and is refuted in the same manner.

The examiner acknowledges the amendment to claim 12 and withdraws the 35 U.S.C. § 112 2nd rejection.

The examiner acknowledges the amendment to claim 19 and withdraws the 35 U.S.C. § 101 rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert E. Carter whose telephone number is 571-270-3006. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on 571-272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

REC



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